

**SYSTEM AND METHOD FOR AUTOMATICALLY GENERATING
A HIERARCHICAL REGISTER CONSOLIDATION STRUCTURE**

ABSTRACT OF THE DISCLOSURE

A system for, and method of, automatically generating a hierarchical register consolidation structure. In one embodiment, the system includes: (1) a graph generator that parses a High-level Design Language (HDL) file to generate an intermediate graph containing definitions of microprocessor-accessible registers, node interrelationships and summary bits and masks associated with alarm registers, (2) a graph converter, associated with the graph generator, that selectively adds virtual elements and nodes to the intermediate graph to transform the intermediate graph into a mathematical tree and (3) a description generator, associated with the graph converter, that employs the mathematical tree to generate a static tree description in a programming language suitable for use by a device-independent condition management structure.